WE CLAIM:

1. A combustion chamber for a rocket drive, comprising:

at least one jacket made of a composite material with a ceramic matrix,

wherein said composite material comprises a fibrous structure made of carbon-containing fibers; and

wherein said fibrous structure comprises layers of fibers forming a three-dimensional matrix.

2. A combustion chamber according to Claim 1, wherein said fibrous structure comprises:

a first layer of fibers;

a second layer of fibers; and

a third layer of fibers,

wherein the fibers of said first layer extend in a first direction in space; the fibers of said second layer extend in a second direction in space; and the fibers of the third layer extend in a third direction in space; and

wherein the individual layers penetrate each other at least partially.

3. A combustion chamber according to Claim 2, wherein said second layer and said third layer of said fibrous structure are connected by means of textile technology.

4. A combustion chamber according to Claim 1, wherein said fibrous structure comprises carbon fibers.

5. A combustion chamber according to Claim 1, wherein said composite material comprises silicon carbide.

6. A combustion chamber according to Claim 1, wherein said at least one jacket made of a composite material is enveloped by a load-bearing external jacket.

7. A combustion chamber according to Claim 6, wherein said external jacket is made of metal.

8. A combustion chamber according to Claim 6, further comprising an intermediate layer, provided between said external jacket and said composite material jacket,

wherein the thermal expansion coefficient of said intermediate layer is between that of said external jacket and said composite material jacket.

9. A combustion chamber according to Claim 8, wherein said intermediate layer comprises a composite material with a metal matrix.

10. A combustion chamber according to Claim 9, wherein said metal matrix contains the same metal material as said external jacket.

11. A process for manufacturing a combustion chamber for a rocket drive, comprising:

producing a fibrous structure from layers of carbon-containing fibers with a three-dimensional matrix;

producing a ceramic matrix composite material by feeding silicon into said fibrous structure to form a silicon carbide matrix; and

making at least one composite material jacket from said composite material.

12. A process according to Claim 11,

wherein said fibrous structure is constructed from first, second and third layers of fibers, wherein the fibers of said first layer extend in a first direction in space; the fibers of said second layer extend in a second direction in space; and the fibers of said third layer extend in a third direction in space; and

wherein said first, second, and third layers penetrate each other at least partially.

13. A process according to Claim 11, wherein said first, second and third layers of said fibrous structure are connected together by means of textile technology.

14. A process according to Claim 13, wherein said first, second, and third layers are connected together by at least one of weaving and sewing.

15. A process according to Claim 11, further comprising channel-shaped spaces in at least one of on the surface of the fibrous structure and in the fibrous structure.

16. A process according to Claim 11, wherein said channel-shaped spaces are worked into the surface of the composite material by mechanical treatment.

17. A process according to Claim 15, wherein at least the surface areas of the composite material provided with said channel-shaped spaces are coated with metal.

18. A process according to Claim 16, wherein at least the surface areas of the composite material provided with said channel-shaped spaces are coated with metal.

19. A process according to Claim 11, further comprising channel-shaped contracting bodies arranged on at least one of on the surface of said fibrous structure and in said fibrous structure.

20. A process according to Claim 11, further comprising a load-bearing external jacket affixed on said jacket.

21. A process according to Claim 19, wherein said external jacket is made of metal material.

22. A process according to Claim 20, wherein said external jacket is affixed by electroplating, soldering, or welding.

23. A process according to Claim 19, further comprising an intermediate layer between said external jacket and said composite material jacket, wherein the thermal expansion coefficient of said intermediate layer is between that of said external jacket and that of said composite material jacket.

24. A process according to Claim 22,

wherein said intermediate layer comprises a composite material with a metal matrix;

wherein said intermediate layer is affixed on said composite material jacket;

wherein said external jacket comprises a metal material; and

wherein said external jacket is affixed on said intermediate layer.

25. A process according to Claim 23, wherein said affixing is completed by first affixing a fibrous structure on said composite material jacket, then

depositing a metal material on said fibrous structure with simultaneous infiltration of said fibrous structure with said metal material.

26. A process according to Claim 24, wherein said metal material is deposited by means of electroplating.

27. A process for manufacturing an intermediate layer between an internal jacket and an external jacket of a combustion chamber for a rocket drive, comprising:

affixing a fibrous structure made of carbon-containing fibers on the internal jacket; and

depositing a metal material on said fibrous structure with simultaneous infiltration of the fibrous structure with said metal material,

wherein at least one part of the internal jacket or the external jacket is made of a composite material with fibrous structure of carbon-containing fibers.

28. A process according to Claim 26, wherein said metal material is deposited by means of electroplating.